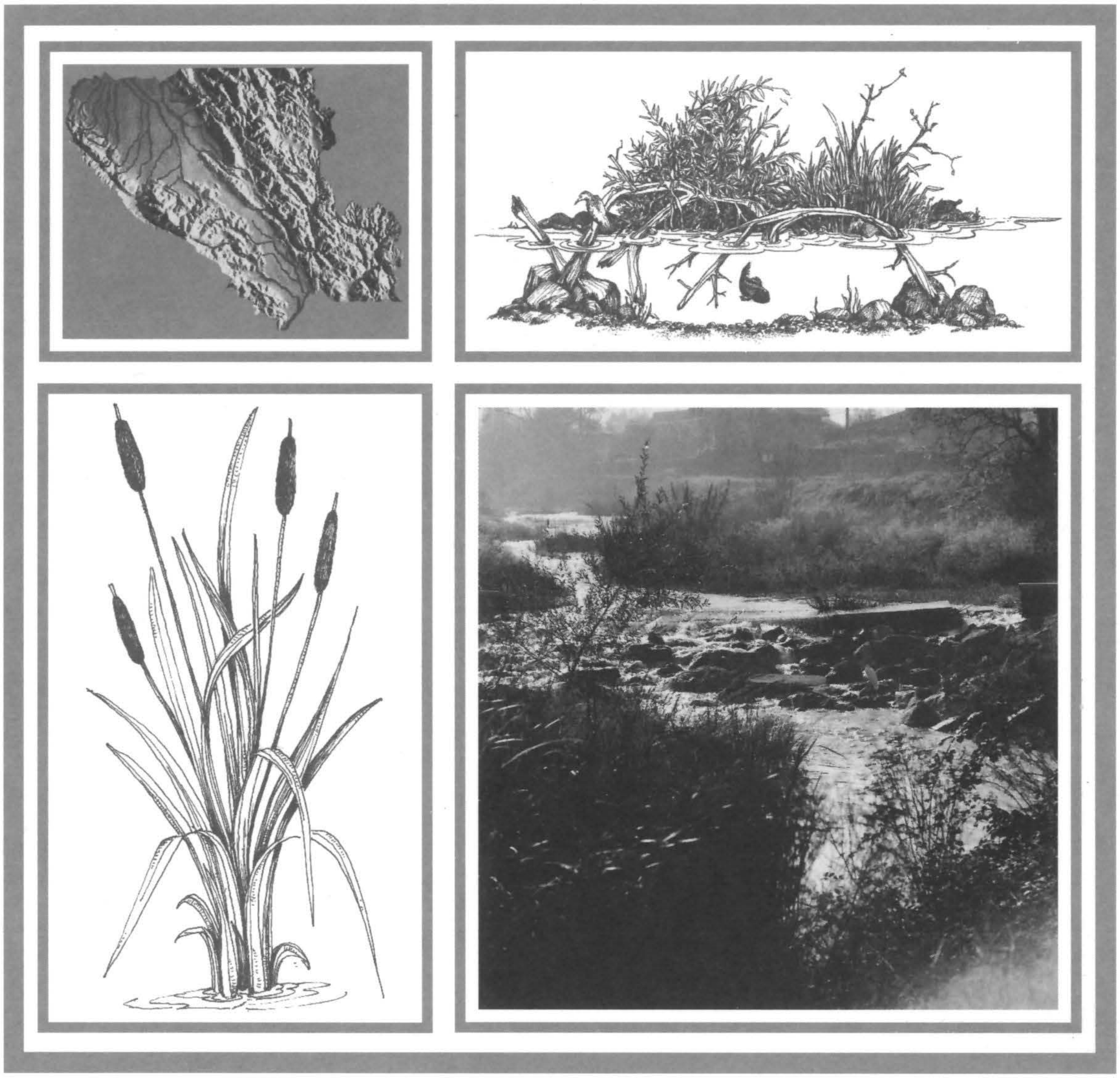

STREAM CARE GUIDE

FOR SANTA CLARA COUNTY

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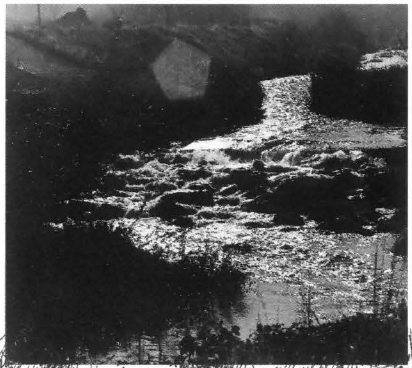
PROPERTY OF SANTA CLARA VALLEY
WATER DISTRICT
5750 Almaden Expressway
San Jose, California 95118

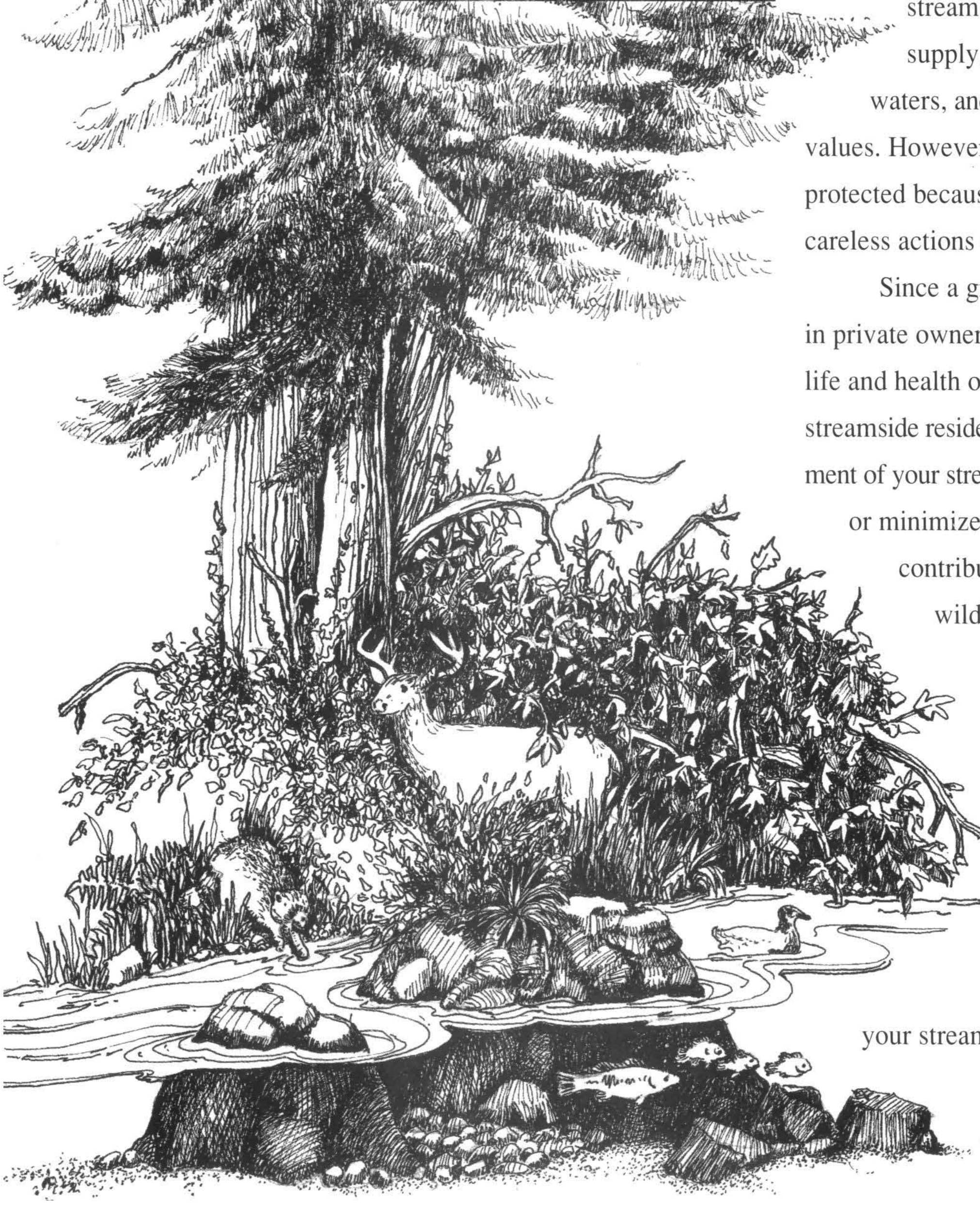
A GUIDE FOR STREAMSIDE PROPERTY OWNERS



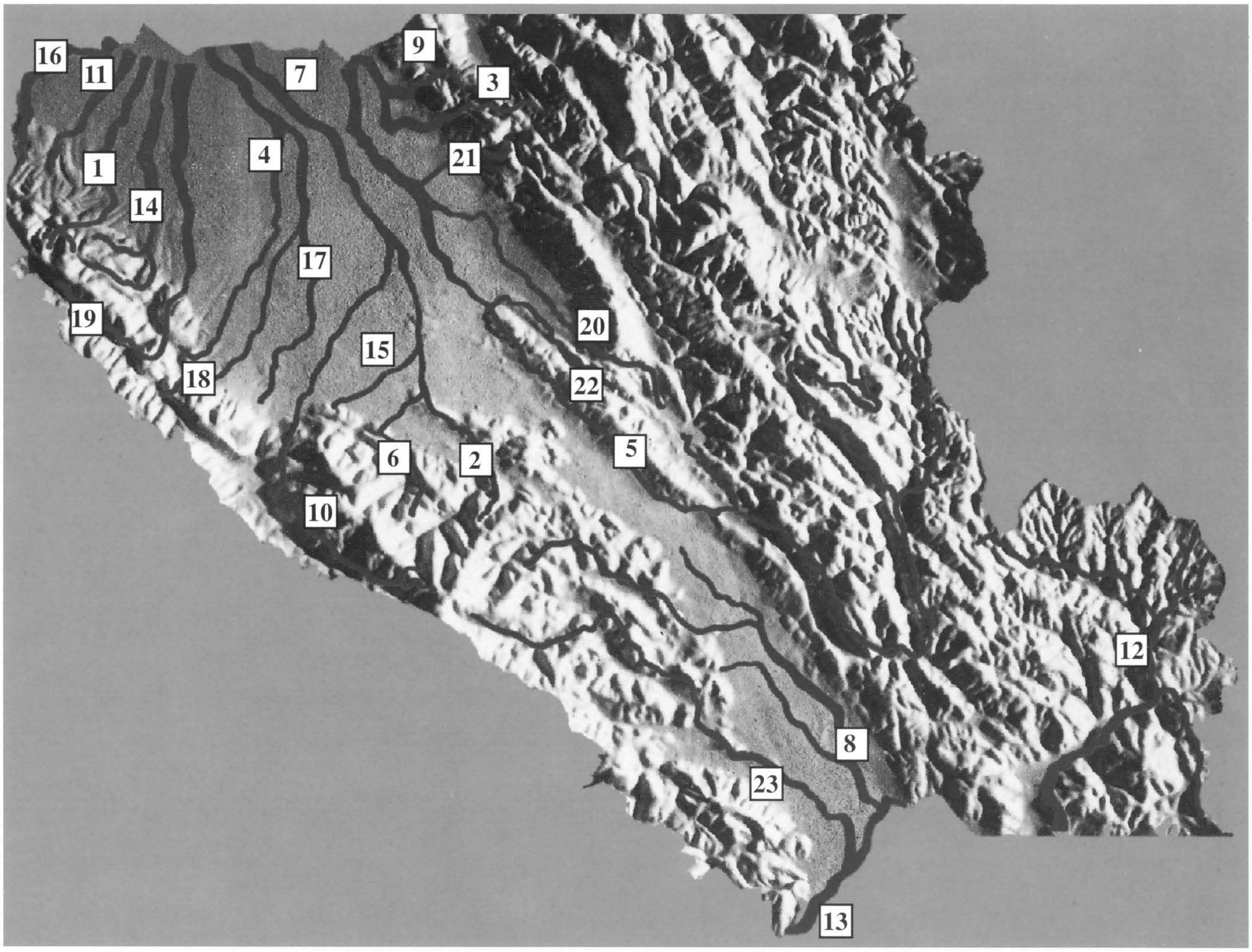
Streams, large or small, natural or modified, touch the lives of almost every resident of Santa Clara County. More than 600 miles of streams, which are in the Santa Clara Valley Water District's jurisdiction flow through the county, so no one in the county lives too far from a watercourse. An invaluable resource, streams provide surface and groundwater supply, wildlife habitat, a conduit for floodwaters, and a host of aesthetic and recreational values. However, streams must be cared for and protected because they can be easily damaged by careless actions or poor land management practices.

Since a great majority of streamside property is in private ownership, much of the responsibility for the life and health of our streams lies with you, the streamside resident or property owner. Proper management of your stream bank and its vegetation can prevent or minimize erosion, preserve water quality, contribute to the survival of the area's fish and wildlife, and help avoid flood damage.

Proper stream care is simple, but requires your active participation. This booklet is a guide to your stream stewardship. On the last few pages, you'll find a list of phone numbers for further assistance in the principles of stream management. With a little care, you can preserve and enhance your streamside environment.



MAJOR STREAMS IN SANTA CLARA COUNTY



1. Adobe Creek
2. Alamitos Creek
3. Berryessa Creek
4. Calabazas Creek
5. Coyote Creek
6. Guadalupe Creek
7. Guadalupe River
8. Llagas Creek
9. Los Coches Creek
10. Los Gatos Creek
11. Matadero Creek
12. Pacheco Creek
13. Pajaro River
14. Permanente Creek
15. Ross Creek
16. San Francisquito Creek
17. San Tomas Aquino Creek
18. Saratoga Creek
19. Stevens Creek
20. Thompson Creek
21. Upper Penitencia Creek
22. Upper Silver Creek
23. Uvas - Carnadero Creek

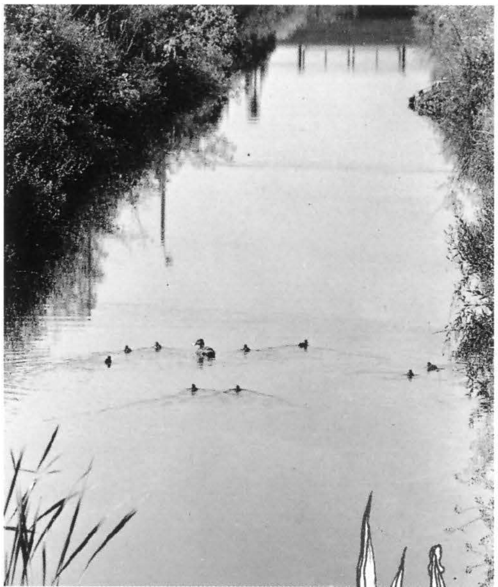
HEALTHY WATERSHEDS — HEALTHY STREAMS

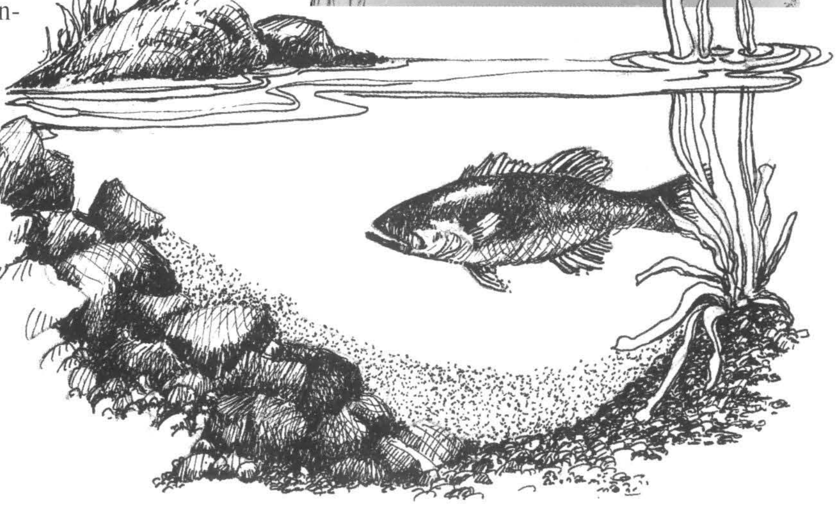
The life of a stream reflects conditions throughout its watershed (an area of land where all water drains to a common location), not just those along its banks. These conditions, in turn, reflect the varied natural processes and human activities that occur there. The major watersheds in the county include San Francisquito, Adobe, Matadero, Stevens, Permanente, Calabazas, San Tomas Aquino, Los Gatos, Coyote, Penitencia, Llagas, and Uvas creeks and the Guadalupe River. Even if you don't live along one of these larger waterways, the streamside management you practice in their watersheds will likely affect a much greater area than you think.

The amount and pattern of rainfall are obvious factors affecting the stream, but residential development, road building, agriculture and grazing, and recreation activities are also significant forces. Without careful planning, these practices can harm streams by contributing sediment from erosion and by releasing an array of contaminants such as household chemicals, oil and debris from roads, and fertilizer and pesticide runoff. Though they don't come from a single concentrated source, these "nonpoint" pollutants, taken together, pose the greatest danger to the county's streams. To control these pollutants in the north county, the Santa Clara Valley Nonpoint Source Pollution Control Program was formed. For more information on this program, please call the number under *Getting Help* at the end of this booklet.

In rural areas, discharge from septic systems via underground flow to streams routinely raises nitrate levels. Unhealthy levels of nitrates can cause rapid growth of algae, which clogs the channel and depletes the water's dissolved oxygen supply, so vital to aquatic life.

Streams are resilient and can recover from occasional pollution. But chronic contamination and sedimentation pose a much greater threat. While you may have little control over many of the activities in the watershed, your actions and that of your neighbors can do much to control the harmful effects of these activities on your stream.





THE LIVING STREAM

A stream is more than just a channel for rainwater in its passage to the sea. It is a complex, living system where the characteristics of the streambed—its composition, shape, and elevation drop—interact with the dissolved nutrients and organic matter in flowing water to create a dynamic environment rich with plant, animal, and fish life.

A number of conditions typify natural streams in their pristine state. These include cool, clear, oxygen-rich water free of contaminants and excess algae; plenty of clean gravel for fish spawning and aquatic insects; a balance of fast, flowing water for spawning and feeding; slow, calm pools for rest; and streamside vegetation to provide shade and food. Human activities can influence all of these factors.

Many animals and plants make their home in the narrow corridor of streamside vegetation known as riparian habitat—the area immediately adjacent to your stream. This high-moisture environment, which covers only a small percentage of the county's watershed, provides food and shelter for a greater variety of wildlife than any other habitat type. This zone is also critical as a migration corridor for many animals, especially where nearby development acts as a barrier to overland travel.

The Santa Clara Valley Water District (district) has adopted an ordinance to protect the streams and riparian habitat in the county. Under this district ordinance, you must obtain a valid permit for any construction activities including but not limited to grading, bank protection and revegetation within the vicinity of the stream bank. In addition, many activities along streams are regulated by the California Department of Fish and Game. **Before beginning any work near your stream, contact the Santa Clara Valley Water District Permits Section and the California Department of Fish and Game for help in obtaining guidance and the proper permits.** District Ordinance 83-2 prohibits dumping any kind of material in or next to a creek. The ordinance also prohibits trespassing, excavation, construction and planting without first obtaining a permit from the district. Violation of this ordinance or refusal to correct a violation is considered a misdeameanor and can be punishable by a fine not exceeding $500, or imprisonment in the county jail not to exceed 30 days, or both fine and imprisonment. Telephone numbers are listed under *Getting Help* at the end of this booklet.

STREAMS IN DECLINE

Sediment, erosion, sewage and other urban pollution are the greatest enemies of Santa Clara County streams. Together they have caused declines in or the elimination of, the productivity of area waterways by destroying the habitat of local fish and the tiny plants and insects they feed on. This is reflected in low fish populations, especially steelhead trout and salmon.

Steelhead and salmon are particularly sensitive to the effects of stream sediment and pollution. Too much silt can irritate their sensitive gills, cover over gravel where they feed and spawn, suffocate their eggs, and fill in pools where juvenile fish live before they make their way to the ocean. **Because steelhead and salmon spawn during the rainy season, work is generally not allowed by the district or the state Department of Fish and Game in streams between October 15 and April 15.**

A decline in stream health need not occur. Good stream care combats sediment, erosion and pollution, preserves natural streams from further decline, and directly benefits local fish populations. In fact, in recent years certain fish populations have increased in some of our streams. However, the waterways still need our help so these fisheries can continue to improve.

Guidelines For Stream Care

The goals of stream care are to:

- Minimize erosion from property adjacent to streams.
- Eliminate contamination from entering the streams.
- Preserve the stream and the riparian zone bordering it in as natural a state as possible.
- Repair disturbed sites by stabilizing the stream bank and, where feasible, restore native streamside vegetation.

These goals recognize that it is always easier and less expensive to prevent damage to a stream than to restore an impacted waterway. If you are not able to meet all of these goals, it may be possible for you to dedicate right of way for the stream area to the district for help in proper maintenance of the stream. The district will then provide maintenance when appropriate. Several general guidelines flow from the goals mentioned above:

1. Check for sources of erosion on your property and adjoining your property and treat them promptly.

Any spot where flowing water meets unprotected soil is a potential erosion problem. Typical examples include dirt roads, driveways or parking areas, earthen drainage ditches, overgrazed pasture or corrals, any patches of bare or sparsely vegetated earth—perhaps even your vegetable garden or areas where runoff is concentrated and flows over the creek bank.

In these areas your goals should be to reduce the speed of water flow, redirecting it to stable, vegetated areas, or shielding the soil with protective materials such as gravel, rocks, or other acceptable substances, and then directing the water to a storm drain. Concentrated flows should not be directed over the creek bank.

Properly installed water bars, drainage ditches, and culverts will help keep the soil on your dirt road where it belongs. Culvert mouths should be stabilized with rocks, and a lining of rocks can also stabilize eroding ditches and small gullies. In steeper areas, small checkdams may be needed to retain sediment.

Replant disturbed soils

as quickly as possible, preferably with native plants. On ground that is not too steep, a covering of straw over newly bared earth will help prevent erosion until vegetation has returned. Pasture or corral areas should be bounded by strips of undisturbed vegetation to act as a silt-catching "filter."

Solving erosion problems can be complicated, and mistakes can further aggravate the problems. Before taking any action, consult the references in the back of this booklet and request a permit from the **district's permit section**. Erosion problems can be persistent and complex, but addressing them properly is essential to protecting your property as well as your stream.

2. Assess the condition of your stream bank regularly and address problems quickly.

Streams are constantly reshaping their routes through a process of active scouring on outside curves and deposition of sediment bars on inside curves. This natural tendency for the stream course to change or meander may lead to problems on your stream bank property. In addition, direct disturbance of the stream bank may have occurred, leaving the bank in an unstable condition. Examine your stream bank and stream channel for the following:

- bank failure or erosion, especially undercutting on the outside of curves where the stream's erosive force is highest;
- flow running over the bank causing bank erosion;
- stripped or damaged stream bank vegetation.

If any of these problems exist, you may need to take action to restore your stream bank to good health. However, stream bank stabilization is usually not a simple matter. Changes in stream flow due to stabilization work can occur and are difficult to predict. Actions taken to protect your bank may have unforeseen consequences downstream, with the result that you may simply pass your erosion problem on to your neighbor. **For this reason, a district ordinance requires that you obtain a permit for any work done to your stream bank or streambed.** Obtaining this permit will allow you the opportunity to consult with the district on proper types and placement of erosion protection materials.

3. Avoid removing natural debris from the stream channel unless it poses an erosion or flood hazard.

Woody debris, such as fallen logs and stumps, may provide an important source of cover, food, and shelter for fish and other stream dwellers. For example, areas of accumulated woody debris have been found to support the highest number of juvenile steelhead in local streams. A moderate amount of such debris can also provide natural protection for stream banks. In general, don't remove these materials unless they would cause a problem such as erosion or flooding. For advice on whether materials in your stream will present a problem, contact the district's general maintenance division. **Remember, you must always obtain a district permit before removal of vegetation or entering district right of way.**

4. Leave streamside vegetation intact.

Avoid "improving" your creekside area by mowing, clearing, or stripping vegetation unnecessarily. A healthy stream bank needs undisturbed soil and vegetation. Streamside trees, vines, shrubs, grasses, and reeds (excluding non-native species) are all essential parts of the stream ecology.

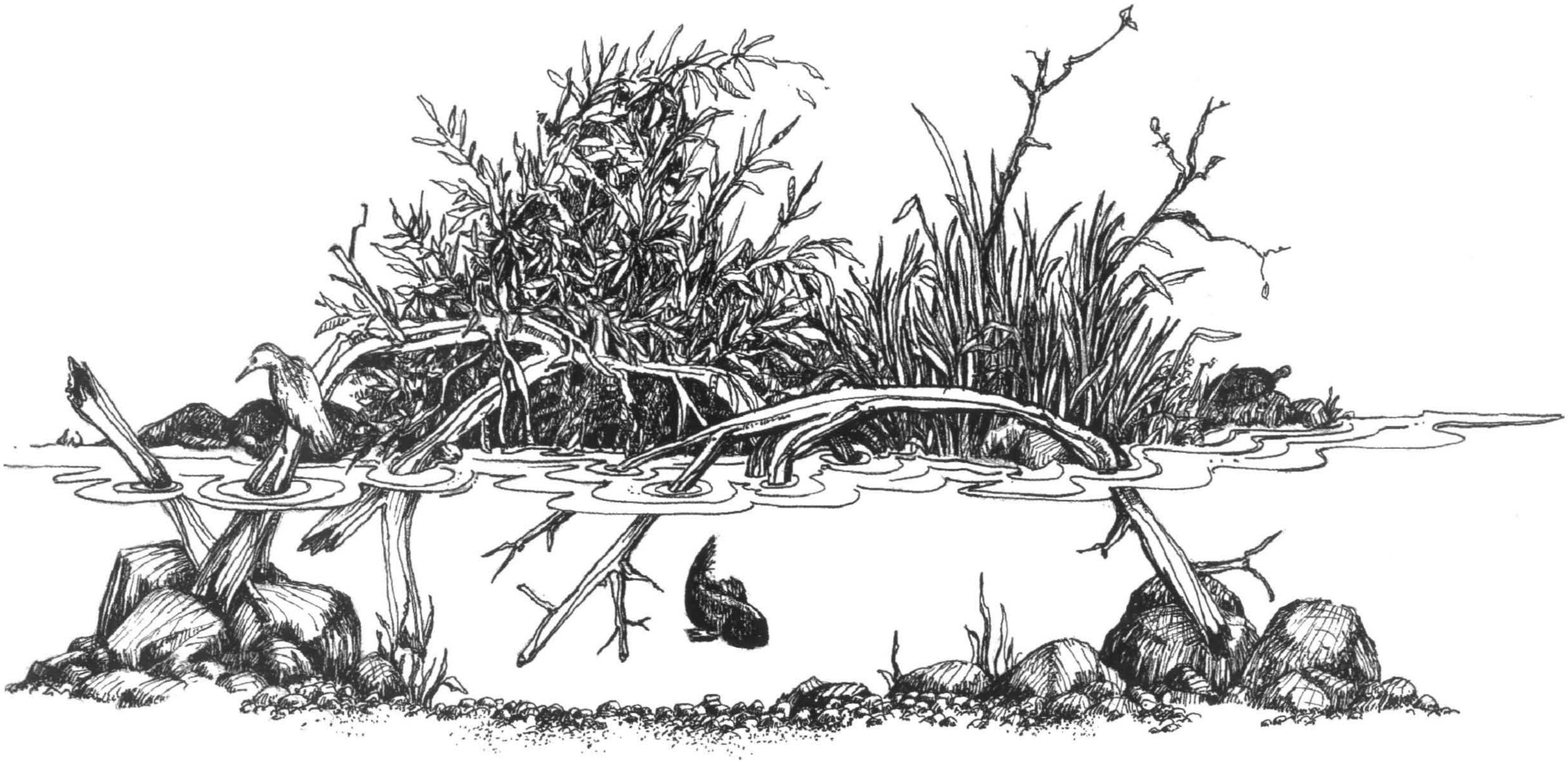
Riparian plants not only provide critical wildlife habitat, they also directly affect living conditions in the stream itself. Streamside plants provide shade, lowering water temperatures for fish and creating hiding cover for fish and other organisms. Leaves and insects dropping from nearby trees and bushes supply food for many stream dwellers, while plant roots can help stabilize the bank, preventing erosion.

A healthy riparian corridor can also act as a sediment and pollutant "screen," filtering silt from adjacent property and absorbing some pollutants. To be an effective screen, however, this zone of vegetation must be sufficiently wide, and the shrubs, vines, and grasses of the understory—not just the trees—must be present.

In times of flooding, a well-vegetated stream bank may be your property's best protection. The plants growing there are uniquely adapted to surviving flood conditions, providing erosion protection at high flows and recovering quickly when floodwaters subside.

However, overgrown streams can cause a flood hazard by reducing the ability of the stream to convey flood flows. Periodic trimming and thinning out of vegetation may be necessary, but if done properly, will not impact the positive effects of the vegetation. The owner of the stream is responsible to properly maintain the stream sufficiently clear of vegetation and debris to reduce the flood hazard unless right of way has been granted to the district. The district's general maintenance division can help you assess the flood hazard on your stream.

If streamside vegetation must be disturbed, replace it quickly, preferably with native species (a list of native species is included at the end of this brochure). **In many cases, this may require professional advice and in all cases will require a district permit.**



5. Avoid building in the floodplain.

Any structure built within the reach of floodwaters could be located in a floodplain and would not only be subject to damage or loss, but may actually increase the flooding by decreasing the area that can convey the flood flows. Recognizing this flood hazard, county and city ordinances regulate all building in the floodplain. The safest advice, for your property and your stream, may be to maintain the flood zone in its natural state. If you live in a floodplain, you should always seek the advice of the county or city before building any new structures.

6. Check your septic system frequently and pump it regularly.

If you live by a stream and use a septic system, you have a special responsibility to make sure it is functioning efficiently. Some county watersheds contain a higher density of septic systems. Because of this density, the land cannot fully treat the leachate, leading to massive loads of bacteria and dissolved nutrients entering nearby streams and sometimes ending up in our water supply. Replacement of leaking septic tanks or inefficient leach fields and periodic pumping of septic tanks can help keep this substantial source of stream contamination in check.

7. Dispose of wastes properly—not in or near the stream.

Your stream is not a garbage dump or compost area. Disposing of any material there; even yard clippings, tree cuttings, or garden wastes; is prohibited by district ordinance and can harm native streamside vegetation and cause problems both for the stream itself and your downstream neighbors if floodwaters carry it away.

Remove old tires, domestic garbage, and litter that others may have dumped on your land. Especially, don't dispose of antifreeze, waste oil, paint, solvents, detergents or other chemicals anywhere near your stream or any waterway, no matter how small or infrequent. Even if these materials are dumped some distance from the waterway, rainwaters will likely carry them into the creek. These materials should always be disposed of properly.

Remember also that nearly all storm sewers, and the materials carried by them, feed into a local stream—maybe yours. A few ounces of paint thinner, used oil, or even swimming pool water dumped down one of these drains may not seem like much, but the consequences can be far-reaching, especially when multiplied by the many households that have these common substances. For information on how to dispose of these substances, call your city or the Santa Clara Valley Nonpoint Source Control Program.

8. Control pet and livestock access to streams and the riparian corridor.

Domestic animals and livestock can easily disrupt the stream environment. If uncontrolled, pets can terrorize wildlife in the riparian corridor, spook fish, and muddy stream waters. Livestock can quickly destroy stream banks, trample streamside vegetation, and contaminate local water supplies. Prohibiting livestock access to stream zones is usually a good idea. A buffer zone of undisturbed vegetation between pasture and stream will also help control sediment.

9. Exercise care when using any pesticides, herbicides, or fertilizers.

Many yard and garden chemicals are extremely toxic to fish and other aquatic organisms and inhabitants of the riparian corridor, such as birds. Even small amounts of these compounds entering streams in airborne droplets as you spray, or in storm runoff, can affect stream life. Before applying herbicides or pesticides within the streamside zone, contact the Santa Clara Valley Nonpoint Source Pollution Control Program, the district's vegetation, or environmental sections for advice.

10. Conserve water.

Excess water use or diversion of water from the stream affects the life of your stream in the most fundamental of ways. In fact, without adequate water flows, especially in the summer, your stream can't support much life at all. Second to sediment and pollution, low water flows are the greatest cause of fish habitat loss and fish declines.

Practice water conservation. Each drop of water you save, whether by landscaping with drought-tolerant plants, reducing personal consumption, installing drip irrigation, or other strategies, directly contributes to the ability of the district to properly manage the county's water resources (see *Getting Help* at the back of this booklet for a number to call for advice on conservation).

NATIVE PLANT SPECIES

Trees:

- Big Leaf Maple (*Acer macrophyllum*)
- California Box Elder (*Acer negundcalifornicum*)
- California Buckeye (*Aesculus californica*)
- White Alder (*Alnus rhombifulia*)
- Western Sycamore (*Platanus racemosa*)
- Fremont Cottonwood (*Populus fremontii* ssp. *fremontii*)
- Coast Live Oak (*Quercus agrifolia*)
- Valley Oak (*Quercus lobata*)
- Narrow-leaved Willow (*Salix exigua*)
- Red Willow (*Salix laevigata*)
- Yellow Willow (*Salix lucida* ssp. *lasiandra*)
- Arroyo Willow (*Salix lasiolepis*)
- Blue Elderberry (*Sambucus mexicana*)
- Coast Redwood (*Sequoia sempervirens*)
- California Bay Laurel (*Umbellulari californica*)

Shrubs and Vines:

- California Sagebrush (*Artemisia californica*)
- Mule Fat (*Baccharis salicifolia*)
- Virgin's Bower (*Clematis ligusticifolia*)
- Toyon (*Heteromeles arbutifolia*)
- Coffeeberry (*Rhamnus californica*)
- Red-Flowering Currant (*Ribes sanguineum* var. *glutinosum*)
- California Rose (*Rosa californica*)
- California Blackberry (*Rubus ursinus*)
- Snowberry (*Symphoricarpos albus* var*laevigatus*)

Ground Covers and Herbaceous Perennials:

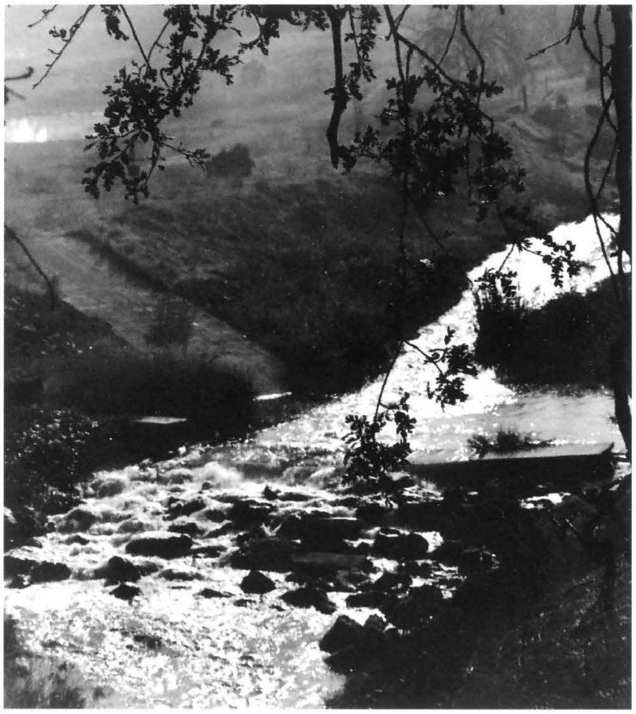
- Five Finger Fern (*Adiantum aleuticum*)
- Lady Fern (*Athyrium filix-femina var. cyclosorum*)
- Mugwort (*Artemisia douglasiana*)
- Western Aster (*Aster chilensis*)
- Douglas' Baccharis (*Baccharis douglasii*)
- Wood Fern (*Dryopteris arguta*)
- Western Goldenrod (*Euthamia occidentalis*)
- Beardless Wildrye (*Leymus triticoides*)
- Sticky Monkey Flower (*Mimulus aurantiacus*)
- California Polypody Fern (*Polypodium californicum*)
- Yerba Buena (*Satureja douglasii*)
- California Figwort (*Scrophularia californica*)

Note:

(1) Each species listed has preferences for certain locales, soil types, moisture regimes, and sun exposures; consult a local plant expert to assist with selection. (2) This is only a partial species listing.

While the plants on this list are generally suited for use adjacent to streams, it is recommended that you seek expert advice prior to making a final selection and obtain a district permit before planting.

GETTING HELP



In many cases, common sense, as well as local ordinances, will guide you in caring for your stream, but sound advice can never hurt. Below are listed several sources of information to help you with the details of erosion control and stream bank management and to aid you in obtaining the proper permits, if needed.

Santa Clara Valley Water District (408)265-2600 (operator) or (408)265-2607 plus one of the extension numbers listed below (direct line)

• Permits	ext. 2257 or 2253
• General Maintenance	ext. 2378
• Vegetation Control	ext. 2459
• Ordinance Enforcement	ext. 2275
• Water Conservation	ext. 2391
• Environmental Revegetation	ext. 2693
California Department of Fish and Game	(408) 649-2870
Santa Clara Valley Nonpoint Source Pollution Control Program	(800) 794-2482
Emergency Spills	911

If you observe some activity near a stream that may harm the environment or threaten the community, you can report it by calling the Santa Clara Valley Water District's Design Coordination Division, Ordinance 83-2 Enforcement, (408) 265-2607, extension 2275.

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